

## Claims

[1] A receiving circuit, comprising:

a variable gain amplifying apparatus for amplifying a received modulated signal;

a high pass filter for removing low frequency components of said modulated signal which is cascaded to said variable gain amplifying apparatus;

a switch for fixing the output voltage of said high pass filter to a reference voltage;

a low pass filter for removing high frequency components of said modulated signal which is cascaded to a cascaded circuit of said variable gain amplifying apparatus and said high pass filter and makes it possible to change the cutoff frequency; and

a gain control apparatus for changing the gain of said variable gain amplifying apparatus in order to change the size of the modulated signal that passes through said variable gain amplifying apparatus, said high pass filter and said low pass filter, wherein

in response to control for changing the gain of said variable gain amplifying apparatus, said gain control apparatus controls said switch, and thereby, fixes the output of said high pass filter at said reference voltage for a constant period of time, and in addition, controls said low pass filter, and thereby, makes the cutoff frequency of said low pass filter

higher than the original cutoff frequency for a constant period of time.

[2] The receiving circuit according to Claim 1, wherein said gain control apparatus controls said switch, and thereby, fixes the output of said high pass filter at said reference voltage, and, at the same time or after a constant period of time has passed, controls said low pass filter, and thereby, increases the cutoff frequency of said low pass filter, carries out control for changing the gain of said variable gain amplifying apparatus after a constant period of time has passed after the cutoff frequency of said low pass filter has increased, and controls said low pass filter after a constant period of time has passed after the control for changing said gain so as to return the cutoff frequency of said low pass filter to the original state, and releases the output of said high pass filter from the fixed state at said reference voltage after a constant period of time has passed after the cutoff frequency of said low pass filter has returned to the original state.

[3] The receiving circuit according to Claim 1 or 2, wherein one or more variable gain amplifying apparatus, high pass filter and low pass filter which are the same as said variable gain amplifying apparatus, said high pass filter and said low pass filter, are cascaded in an arbitrary order and combination.

[4] The receiving circuit according to Claim 1 or 2, wherein a mixer for carrying out frequency conversion using a local

oscillation signal so that a received and gained high frequency signal including a modulated component is converted to said modulated signal is provided in an input portion of said variable gain amplifying apparatus.

[5] A receiving apparatus, comprising:

the receiving circuit according to Claim 4;

a source for a local oscillation signal which supplies said local oscillation signal to said mixer; and

a demodulating means for carrying out appropriate signal processing on a modulated signal gained from said receiving circuit so as to gain a predetermined demodulated signal.

[6] A transmitting/receiving apparatus, comprising:

the receiving apparatus according to Claim 5;

a transmitting apparatus for modulating a predetermined signal and carrying out frequency conversion so as to gain a high frequency signal which is then fed out; and

a signal selecting apparatus where one selection terminal portion is connected to an input of said receiving apparatus and the other selection terminal portion is connected to an output of said transmitting apparatus.

[7] The transmitting/receiving apparatus according to Claim 6, wherein said signal selecting apparatus is an antenna switch.

[8] The transmitting/receiving apparatus according to Claim 6, wherein said signal selecting apparatus is a duplexer.